

## CLAIMS

1. A multi-layer printed wiring board in which an interlayer insulating layer and a conductive layer are formed on both sides or a single side of a core substrate having a plurality of through holes and electric connection is carried out through via holes,  
the through holes in the core substrate being disposed so that a ground through hole and a power through hole adjoin each other.
2. A multi-layer printed wiring board in which an interlayer insulating layer and a conductive layer are formed on both sides or a single side of a core substrate having a plurality of through holes and electric connection is carried out through via holes,  
the through holes in the core substrate including two or more ground through holes and two or more power through holes, such that the ground through hole and the power through hole are disposed in a grid formation or in a staggered formation at adjacent positions.
3. The multi-layer printed wiring board according to claim 1 or 2 wherein a distance between the ground through hole and the power through hole is in a range of 60 to 550  $\mu\text{m}$ .
4. The multi-layer printed wiring board according to any one of claims 1 to 3 wherein the diameter of the ground through hole is 50 to 500  $\mu\text{m}$  and the diameter of the power through hole is 50 to 500  $\mu\text{m}$ .
5. The multi-layer printed wiring board according to claim 1 or 2 wherein in at least one of the ground through holes and the power through holes, one or two or more through holes are in a stack structure through entire layers up to the outermost layer.
6. The multi-layer printed wiring board according to any one of claims 1, 2 or 5 wherein the ground through hole and the power

through hole are disposed just below an IC chip.

7. The multi-layer printed wiring board according to claim 1 or 2 wherein the thickness of conductive layer on the core substrate is larger than the thickness of the conductive layer on the interlayer insulating layer.

8. The multi-layer printed wiring board according to claim 1 or 2 wherein assuming that the thickness of the conductive layer on the core substrate is  $\alpha$

1 and the thickness of the conductive layer on the interlayer insulating layer is  $\alpha_2$ ,  $\alpha_2 < \alpha_1 \leq 40\alpha_2$ .

9. The multi-layer printed wiring board according to claim 8 wherein the  $\alpha_1$  is in a relation of  $1.2\alpha_2 \leq \alpha_1 \leq 40\alpha_2$ .

10. The multi-layer printed wiring board according to any one of claims 7 to 9 wherein each conductive layer of the core substrate is conductive layer for power layer or conductive layer for grounding.

11. The multi-layer printed wiring board according to any one of claims 1, 2, 7 to 10 wherein a capacitor is mounted on the surface thereof.

12. The multi-layer printed wiring board according to claim 1 or 2 wherein the core substrate is a multi-layer core substrate composed of three or more layers and including a thick conductive layer as an inner layer, and the conductive layer of each inner layer of the core substrate and the conductive layer of each surface are conductive layer for power layer or conductive layer for grounding.

13. The multi-layer printed wiring board according to claim 1 or 2 wherein the core substrate is a multi-layer core substrate composed of three layers and including a thick conductive layer as an inner layer, and

the conductive layer of each inner layer of the core substrate is conductive layer for power layer or conductive layer for grounding and the conductive layer on the front surface side

is composed of signal line.

14. The multi-layer printed wiring board according to claim 12 or 13 wherein the thickness of the conductive layer of the inner layer of the core substrate is larger than the thickness of the conductive layer on the interlayer insulating layer.

15. The multi-layer printed wiring board according to claim 12 or 13 wherein the conductive layer in the inner layer of the core substrate is composed of two or more layers.

16. The multi-layer printed wiring board according to claim 12 or 13 wherein the core substrate is so constructed that the conductive layer of the inner layer is formed on each of both sides of a metallic plate electrically insulating, through resin layer and further, the conductive layer on the surface side is formed outside the conductive layer of the inner layer through resin layer.

17. The multi-layer printed wiring board according to any one of claims 12 to 16 wherein the core substrate is so constructed that a thick conductive layer is disposed as the inner layer and a thin conductive layer is disposed on the surface side.